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A New Species of Spider Crab of the Genus *Libinia* from Perú, and the First Known Male of *Delsolaria enriquei* Garth, 1973 (Crustacea, Brachyura, Majidae)

John S. Garth and Matilde Méndez G.

Abstract.—A new species of spider crab of the genus *Libinia* from Perú, and the first known male of *Delsolaria enriquei* Garth, 1973 (Crustacea, Brachyura, Majidae), by John S. Garth and Matilde Méndez G., *Bull. Southern California Acad. Sci.*, 82(3):125–130, 1983. A new species of spider crab, genus *Libinia,* and the first known male of another species, *Delsolaria enriquei,* from among IMARPE (Instituto del Mar del Perú) collections from northern Perú are described and illustrated. The former belongs to an amphi-American genus having north and south temperate anti-tropical cognates; the latter is a Peruvian endemic. The new *Libinia* species is most closely related to *L. mexicana* Rathbun of the Gulf of California. *Delsolaria,* as shown by the male first pleopod of *D. enriquei,* is allied with *Libidoclaea* Milne Edwards and Lucas, an austral American genus of the subfamily Pisinae.

Resumen.—Se describen e ilustran una nueva especie de cangrejo araña, *Libinia peruana,* y el macho de *Delsolaria enriquei,* no conocido anterioramente. Los ejemplares corresponden a colecciones efectuadas en el norte del Perú por una embarcación arrastrera langostinera y durante el Crucero 7008–09 del Barco Científico SNP-1 del IMARPE (Instituto del Mar del Perú). La primera especie pertenece a un género que se distribuye en ambas costas de América, la segunda especie es endémica del Perú. *Libinia peruana* se relaciona estrechamente con *L. mexicana* Rathbun, que habita el Golfo de California. *Delsolaria,* por la forma del primer pleópodo del macho de *D. enriquei,* se relaciona con *Libidoclaea* Milne Edwards, un género austral americano de la subfamilia Pisinae.

Introduction

In an earlier paper (Garth 1973) the senior author described and illustrated four new species and one new genus of brachyuran crabs obtained by E. M. del Solar, technical adviser to IMARPE (Instituto del Mar del Perú), from shrimp trawlers off northern Perú. Unfortunately, three of these, including the new genus *Delsolaria,* were represented by females only, making it impossible to describe and illustrate the diagnostic male first pleopods.

A few years ago, while curating the IMARPE collections, the junior author discovered a male specimen of *Delsolaria enriquei,* collected at the same locality as, and at an even earlier date than, the unique female holotype. She also recognized as a *Libinia* species other than the only previously known species from Perú, *L. rostrata* Bell (1835), a specimen collected by Ulario Peréa and given to Dr. del Solar. In the absence of comparative material, this specimen was forwarded to the senior author for study and has since been presented to the Allan Hancock

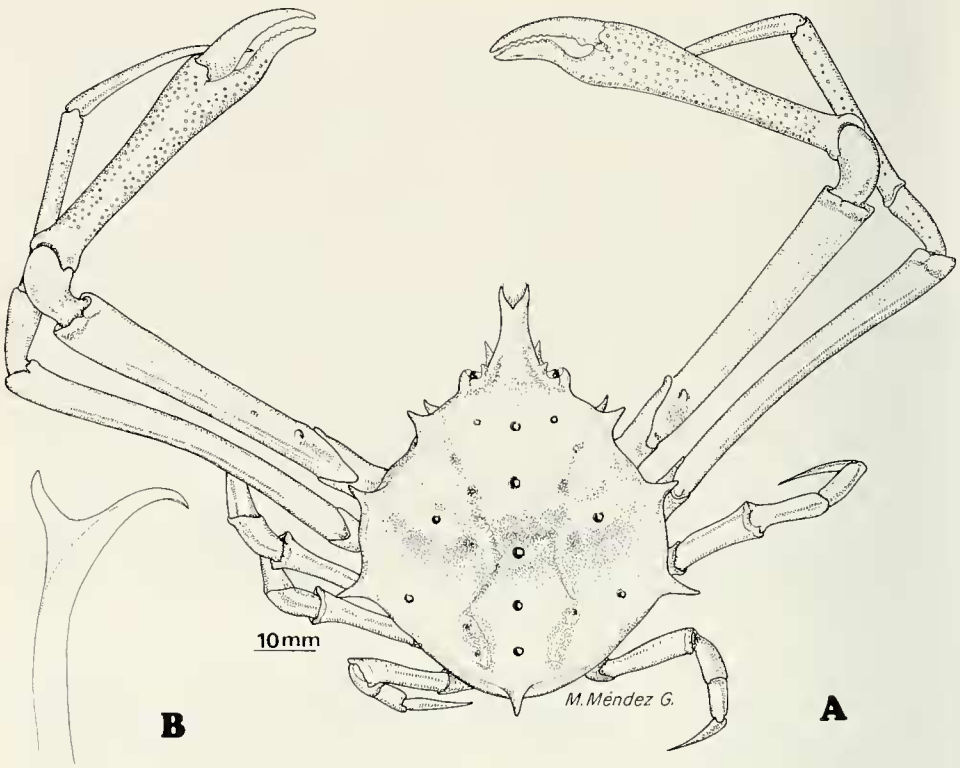

Fig. 1. *Libinia peruana*, new species, male holotype: A, dorsal view; B, first pleopod.

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Libinia peruana, new species
Figure 1, A–B

Type: Male holotype, AHF Cat. No. 726, from Caleta Cruz, Perú, March 1972, from shrimp trawler, Dr. Ulario Peréa, collector, Dr. Enrique M. del Solar, donor.

Measurements (in millimeters): Length, including rostrum, 68.0; rostrum 12.5; width at level of branchial spines 58.8 with (48.5 without) spines; width at level of hepatic spines 33.8 with (31.1 without) spines; cheliped (basis-ischium-merus 66.4, carpus-propodus 72.8) 139.2; chela 61.0; dactyl 20.4; height of palm 12.6.

Diagnosis: Carapace with 6 median and 3 lateral spines, 2 branchial spines, and 1 hepatic spine. Rostrum elongate, horizontal, sides parallel. One spine on basal antennal article. Cheliped and first walking leg of adult male greatly elongated, manus widening distally, fingers gaping broadly at base. Tip of male abdomen rounded. Male first pleopod with tip and keel both slender and acuminate.

Description: Carapace smooth, narrowly pyriform, width less than postfrontal length. Rostrum horizontal, narrow, tubular, sides parallel, tip bifurcate, cleft triangular, tips fringed with hair, forming with antennae an excurrent channel.

Median spines six: two gastric, one genital, two cardiac, and one intestinal; two

dorsal branchial spines, making an oblique line with lateral gastric spine; all but intestinal spine reduced in adult to tubercles. Three lateral marginal spines, one hepatic and two branchial, latter long, slender, upward and forward curving, as is intestinal spine. A prominent preocular spine, a pterygostomian spine with a tubercle behind it, a minute subbranchial tubercle. A spine at anteroexternal angle of basal antennal article; a small spine just behind outer margin of that segment.

Chelipeds and first ambulatory legs considerably longer than remaining pairs, merus of cheliped smooth, a stout spine at base, a tubercle in advance of it (on left side of type specimen only). Manus finely granulate, widening distally, not appreciably compressed, fingers widely gaping at bases. First walking leg as long as cheliped, merus smooth, dactylus very long and slender; remaining legs short, stout, and hairy, their dactyli overreaching their propodi.

Male abdomen 7-segmented, widest opposite segment 3, segment 4 narrowing distally, segments 5 and 6 with sides parallel, segment 7 broadly rounded. Male first pleopod with a slender, curving, grooved tip, keel arising from a broad base set well back but, unlike that of *L. mexicana*, narrowing abruptly, rather than toward tip.

Remarks: Had not the adult pair of *Libinia mexicana* Rathbun, originally described from a young specimen from the Gulf of California, México, already been described and illustrated (Garth 1958, p. 326, pl. 37, fig. 1), the male from Caleta Cruz, Perú, might have been mistaken for the adult of that species. Indeed, the same criteria may be used to separate the Peruvian specimen from *L. setosa* Lockington of the west coast of Baja California, México, that were used to separate *L. mexicana* from that species (Rathbun 1925, p. 311, key to *Libinia*). For, like *L. mexicana*, the carapace and rostrum of *L. peruana* are slender, the median spines are reduced from 8 to 6, there is but one hepatic spine, the cheliped is compressed and the fingers of the male gape widely, and the tip of the male abdomen is rounded.

The adult male from the Gulf of California, indubitably *L. mexicana*, makes it possible to differentiate the adult male from Perú, of which the young are unknown, from Rathbun's species. The rostrum of *L. peruana* is even more slender, the marginal spines of the carapace, namely, the paired hepatic, two paired branchial, and unpaired intestinal, are salient and not reduced to tubercles with age, and there is a cylindrical spine at the base of the merus of the cheliped that is not present in *L. mexicana*. Moreover, *L. mexicana*, like *L. setosa*, is a hairy species, while the type of *L. peruana*, although dried and coated with shellac, appears glabrous.

Genus *Delsolaria* Garth

Delsolaria Garth 1973, p. 5; type species *D. enriquei* Garth 1973.

Description (as emended to include the male sex): Chelipeds of male more robust and longer than walking legs, manus swollen, crested above and below, walking legs longer than those of female, diminishing in length from first to last.

Abdomen of male seven-segmented; male first pleopod terminating in a pointed tip and a blunt lobe.

Relationship: Placement of the genus in the subfamily Pisinae of the family Majidae is sustained by the configuration of the male first pleopod, which very

closely resembles that of *Libidoclaea granaria* Milne Edwards and Lucas 1843, as illustrated in Garth (1958, pl. P, figs. 7, 8).

Delsolaria enriquei Garth
Figure 2, A–H

Delsolaria enriquei Garth 1973, pp. 5–7, fig. 3a–f.

Previous record: One female, holotype, north side of Banco de Mancora, Perú, 35 m, gravel, 9 December 1970, E. M. del Solar, collector.

Material examined: One male, topotype, Colección IMARPE-C-307-A-895-A, from Banco de Mancora, Lat. 3°30'S, Long. 81°06'W, 125 m, 1 September 1970, Ship SNP-1, E. M. del Solar, V. Alamo, collectors.

Measurements (in millimeters): Length, including rostrum, 54.2; rostrum 11.9; width at level of branchial spines 42.6; at level of posterolateral margin 38.4; cheliped (ischium-merus 31.6, carpus-propodus 44.3) 75.9; chela 36.0; dactyl 17.2; height of palm 16.5.

Diagnosis: Gastric, cardiac, and branchial regions swollen and tuberculate, lateral branchial tubercle prominent. Rostral, preorbital, and antennal spines of like size and sharpness. Maxilliped distally fringed with clavate setae. Male first pleopod ending in a pointed tip and a blunt lobe separated by a double fold.

Description of male: Carapace ovate-triangular, narrower than female (female one and one-quarter times longer than wide; male one and one-half times longer than wide), highly convex medially and laterally; rostrum 4.6 times length of carapace (in the female 6.0 times), front bifid, horn sharp, cleft shallow, U-shaped, sides slightly concave, a double row of curled setae on each; frontal, antennal, and preorbital spines of comparable size and sharpness. Preorbital spine with outer margin concave, separated by a narrow slit from postorbital cup into which eye retracts, leaving but a fraction of cornea visible from above, a slight constriction behind postorbital cup. Gastric region broad, swollen, surmounted by 16 or more small tubercles of which three are median, remainder paired; epibranchial regions surmounted by a large tubercle and some small ones; mesobranchial regions with three large tubercles forming a triangle; cardiac region most elevated, with four tubercles in a diamond; sides of hepatic and branchial regions each with one or two small tubercles; subhepatic regions with two rows of 3 or 4 small tubercles; intestinal region low, pinched, marked by a single median spine, posterior margin thin, broadly rounded, slightly sinuous, a notch marking off a small lobe at base of second walking leg. Outer maxilliped like that of female.

Chelipeds much more robust and longer than walking legs, merus with anterior and external margins cristate, outer crest with a subterminal spine, carpus tuberculate; manus more or less swollen, crested above and below, fingers long, slender, pointed, downcurving, incurving, ribbed, and multidenticulate; walking legs longer than those of female, diminishing in length from first to last, merus tuberculated on proximal end; carpi tuberculated; dactyli robust, setose.

Male abdomen with seven free segments, with a low median tubercle on each. Male first pleopod long and slender, reaching to last segment of abdomen; flaring distally; pointed tip and opposite blunt lobe separated by a fold continued on both sides of opening to base of tip, entire area provided with many minute spinules.

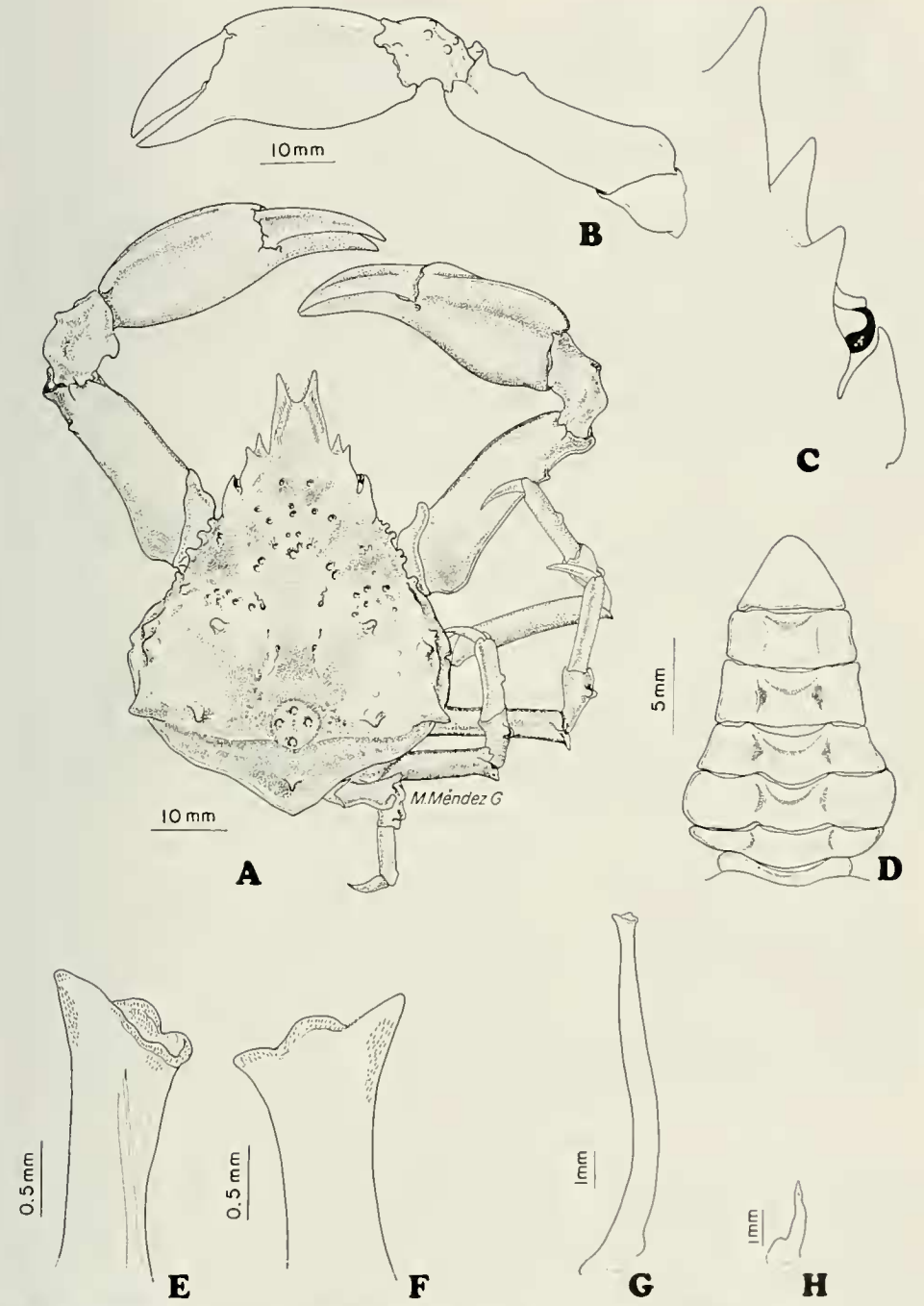

Fig. 2. *Delsolaria enriquei* Garth 1973, male topotype: A, dorsal view; B, left chela, outer view; C, rostrum and orbit, dorsal view (partial); D, abdomen; E, first pleopod, ventral view; F, first pleopod, dorsal view; G, first pleopod, entire; H, second pleopod.

Remarks: The discovery by the junior author among IMARPE collections of a male specimen collected at the same locality as the unique female holotype and at an even earlier date makes possible the description and illustration of the opposite sex, including the diagnostic first pleopod, and the placement of the genus *Delsolaria,* erected to receive it, in the subfamily Pisinae, a matter previously in doubt. It further permits emending the generic description to include the sexually dimorphic abdomen, chelipeds, and walking legs of the first two pairs of the male sex. Had the recently discovered specimen been known to the senior author at the time *Delsolaria enriquei* was first described (Garth 1973), it undoubtedly would have been selected as the holotype; under the circumstances of subsequent recognition, however, it does not qualify as a paratype, not having been present at the time the original description was written. Notwithstanding, its importance in establishing the systematic position of the new genus and species cannot be overestimated. The bathymetric range of the species is extended from 35 to 125 m.

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